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Applicant(s): Scott D. Lucas et al.

Docket No.

98035-01

Serial No.

09/317,409

Filing Date

May 24, 1999

Examiner

J. Befumo

Group Art Unit

1771

Invention: **PRODUCTS AND METHOD OF CORE CRUSH PREVENTION**

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Reply Brief (4 pages in triplicate) and Petition for Extension of Time Under 37 C.F.R. 1.136(a) (1 page in duplicate)

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of: Scott D. Lucas, et al. §

Serial No.: 09/317,409 §

Filed: May 24, 1999 §

For: **PRODUCTS AND METHOD OF
CORE CRUSH PREVENTION** §

Group Art Unit: 1771

Examiner: J. Befumo

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REPLY BRIEF

Appellants file this Reply Brief in response to the Examiner's Answer mailed on June 29, 2002, (Paper No. 24).

Response to Argument

- I. **The subject matter of Claims 55 and 57-59 is fully supported in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention and therefore comply with 35 U.S.C. §112, first paragraph.**

In Ex Parte Parks, the negative limitation "in the absence of a catalyst" was found by the Board to have been supported by a specification that never once even mentioned a catalyst. In the present specification, disadvantages associated with using known mechanical means such as tie down plies for restraining movement of prepreg layers in honeycomb sandwich structures during cure are set out in a number of places. In their brief, Appellants argued, relying on the Board's decision in Parks, that the present specification is sufficient to support the amended claims, in particular "in absence of tie down plies contacting the honeycomb core." In response the Examiner's Answer contends that the question now becomes whether the specification would convey the concept of "the absence of tie down plies contacting the honeycomb core." It is respectfully submitted that this has been the question all along and that neither Appellants' arguments or Ex Parte Parks changes or redefines it.

In their brief Appellants argued that the present specification specifically identifies core crush as being a major problem in the manufacture of honeycomb sandwich structures and that the specification teaches "tie downs" as exemplary known "mechanical/physical" means for keeping prepreg plies from differentially moving during autoclave and thereby reducing the core crush. The specification then goes on to fault known methods, (i.e., tie downs) of reducing core crush with increasing production costs and at times failing to provide satisfactory reduction of the problem. Accordingly, the present invention provides as a solution to this problem, honeycomb sandwich structures that are stiffness treated to exhibit reduced core crush and that further, the invention prepreg plies, which are stiffness-treated have constrained differential movement against other prepreg plies. Appellants concluded with "there is no question that in the present specification, the concept of tie down plies as well as the disadvantages associated therewith have been discussed at length."

The Examiner's answer takes issue with Appellants' characterization of the discussions in the specification concerning the disadvantages as being "discussed at length". However, whether these discussions can be properly characterized as being "discussed at length" is insignificant. What is significant though, is that in the present specification disadvantages associated with the use of tie down plies are identified and a solution -stiffened prepregs- is offered. Moreover, in view of the decision in Parks, it is significant that the disadvantages are even discussed at all. So if no new concepts were found to have been introduced in Parks, where no mention of a catalyst or absence thereof was ever made, no new concept should therefore be found to have been added here.

In addition, the Answer also seems to focus on the use of the word "may" in describing the cost disadvantage and performance disadvantage associated with using tie down plies as being indicative of non-support for the amendment to the claim. That tie down plies may increase (i.e., not always) increase the cost associated with producing the honeycomb sandwich layers does not in any way negate the fact that there is a disadvantage associated with their use and that one of skill reading the specification would conclude that in those situations where it does increase cost, the present invention stiffened prepregs would offer a solution to the problem. Moreover, whether the use of a tie down ply may or may not increase costs does not bear on the fact that the use of a tie down ply and the present invention stiffness treated prepreg plies could only increase costs.

The Examiner's Answer then goes on to dismiss Appellants argument that a lack in the specification of any teaching of the use of tie down plies in conjunction with the present stiffness-treated layer is support for the concept of exclusion. Here the Answer mischaracterizes Appellants' invention as being based on the concept of adding stiffness treated prepreg to honeycomb sandwich structures to decrease core crush problems.

However, the present invention does not add a stiffness treated prepreg layer, but instead stiffness treats the prepregs that already make up the honeycomb sandwich.

The answer further contends that since the honeycomb sandwich structures used in the invention can be made utilizing known methods, the structure of the honeycomb could not be seen as limited to exclude previously known materials (such as tie down plies). However, tie down plies are not part of honeycomb sandwich structures, but instead are used for mechanically restraining the movement of prepreg layers in the sandwich structures during cure. Thus the present invention of a stiffness treated prepreg ply in the honeycomb sandwich seeks to eliminate the use of the additional mechanical/physical layer to restrain movement during cure.

The subject matter of Claims 55 and 57-59 is therefore fully supported in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention. Appellants respectfully request that the Honorable Board reverse the rejection of Claims 55 and 57-59 under 35 U.S.C. §112, first paragraph.

II. Claims 55 and 57-59 are definite and particularly point out and distinctly claim the subject matter, which Appellants regard as the invention and therefore comply with 35 U.S.C. §112, second paragraph.

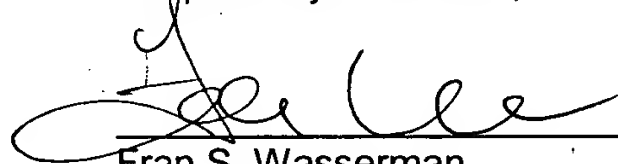
In the first paragraph on page 7, the Examiner's Answer argues that since the claim calls for the "absence of tie down plies contacting the honeycomb core" and not just the absence of tie down plies, the claim would imply that tie down plies can be added to anywhere in the honeycomb sandwich except contacting the honeycomb core. The Answer then goes on to admit that even if the specification might suggest that the stiffened prepreg plies would decrease the core crush without adding tie down plies one would not interpret the claims as excluding the use of tie down plies. Here, it seems that the argument has changed to being that a specification which might admittedly support using the present stiffened prepregs instead of the tie down plies does not support a claim that reads on the inclusion of tie down plies that don't contact the core. It is respectfully submitted that this is inconsistent with earlier positions.

In maintaining this rejection, the Examiner's Answer continues to somehow equate a tie down ply with the stiffness treated prepreg ply of the present invention. The Examiner's Answer also maintains that the present specification defines a tie down ply as a physical or mechanical means to prevent differential movement during the autoclave process. Once again, the specification does not define, but rather offers a tie down ply, as an example of a

physical or mechanical means for restraining movement during autoclave. The Examiner's Answer then goes on to conclude that since Corbett does not limit tie down plies to a picture frame peripheral tie down ply as suggested by Appellant, the term is broader and would seem therefore to a generic term for fabric layers used to prevent differential movement of the honeycomb core and in turn prevent core crush. So the Answer goes on to conclude, the tie down ply appears therefore to include the Appellants' stiffness-treated prepreg plies. A tie down ply is used during cure of the honeycomb structure to prevent movement of the prepreg layers of the structure. In contrast, the present invention stiffness treated prepreg layer is part of the honeycomb sandwich structure itself. It is the stiffness of the layer that prevents the prepreg from slipping during cure. There is therefore no support for the Examiners contention that since the Corbett tie down ply can include sheets that entirely cover the honeycomb core, the term should be considered as referring to a generic term for fabric layers which are used to prevent the differential movement of the honeycomb core including the present invention.

Claims 55 and 57-59 are therefore definite and particularly point out and distinctly claim the subject matter, which Appellants regard as the invention. Appellants respectfully request that the Honorable Board reverse the rejection of Claims 55 and 57-59 under 35 U.S.C. §112, second paragraph.

Respectfully submitted,



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